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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,584	02/02/2002	Sterling J. Backus	C01.110	1955
26344	7590	02/27/2004	EXAMINER	
JENNIFER L. BALES MOUNTAIN VIEW PLAZA 1520 EUCLID CIRCLE LAFAYETTE, CO 80026-1250			NGUYEN, TUAN N	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,584	BACKUS ET AL.	
	Examiner	Art Unit	
	Tuan N Nguyen	2828	<i>Aw</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/05/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Paul Ip

PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06/26/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Affidavit submitted Jan 05, 2004 has carefully reviewed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-20 are rejected under 35 U.S.C 112, second paragraph, as being indefinite, vague, and confusing for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **for example**.

Claims 1, 12 recite a single stage laser amplifying apparatus comprising: *an oscillator* amplifying input light; *a pump laser for pumping*; and *an amplifier for amplifying the input light*, the amplifier pumped by the pump laser. It is vague and indefinite as to the structure of the amplifier – that amplifying the light from 10^{-9} Joules to 10^{-3} Joules. The claims are vague and indefinite as to its structural and relations as shown in the figures. It is vague and indefinite as to what the pump laser is pumping; if the pump laser is pumping a beam to the amplifier, then it is not clear the difference between the *amplifier* and the *oscillator assembly for providing input light to be amplified*. It is vague and indefinite as to the location of the amplifier (*inside/outside of the oscillator*). Furthermore, claim 12 is vague and indefinite as to “*the amplifier includes a cryogenically cooled amplifying medium*”, is the medium cooled (in a liquid or gas medium, or just cooled by thermal transmission) There is insufficient means, structure and functional

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relationship, which render the claims vague and indefinite. Claims 2-11 are rejected base on the same reason.

Claim 13 recites a method of amplifying a coherent light beam in a single stage, comprising the steps of: *providing* input light...; *pumping light* with pump laser; and *amplifying* the pumped light with an amplifier, wherein the amplifier includes a cryogenically-cooled amplifying medium. It is vague and indefinite as to what means use for providing coherent input light, and is the pump laser pump additional light to combine with the coherent light?; Similar with claims 1, and 12. There is insufficient means, structure and functional relationship, which render the claims vague and indefinite. Claims 14-20 are rejected base on the same reason.

Claim Rejections - 35 USC § 102

4. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 13 are rejected under 35 U.S.C. 102(b) as being unpatentable over Mollenauer (US 39700960). Mollenauer '960 shows in figure 1 a single stage laser amplifying apparatus, comprising a pump laser, an oscillator assembly, and an amplifier having a medium being cooled cryogenically by Nitrogen (Fig 11-30).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
7. Claims 2,3, 6, 8, 9, 11, 12, 14,15, 18, 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mollenauer (US 39700960) in view of Weingarten et al (US 5987049) and Plaessmann et al. (US 5615043).

With respect to claims 8, 9, 11, 12, 20 Mollenauer '960 discloses the above except the amplifying medium selected from the following list; " a)...t) Weingarten '049 disclose the use of $\text{Ti:Al}_2\text{O}_3$ and other laser medium (Col 3: 50-52; Col 4: 45-55; Col 6: 5-15). For the benefit of a $\text{Ti:Al}_2\text{O}_3$ or other amplifying medium, it would have been obvious to one of ordinary skill in the art to provide Mollenauer '960 the element as taught or suggested by Weingarten '049. It has been held, to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With respect with claims 2, 3, 14,15 Weingarten '049 discloses the high output power more than 3watt (Col 2: 10-15) and M^2 approximately 1 (Col 2: 35-40). It has been held that

where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claims 6, 18 Weingarten '049 shows in figure 1 the regenerative amplification. It has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184.

8. Claims 4,5,7,16,17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollenauer (US 39700960) in view of Weingarten et al (US 5987049) and Plaessmann et al. (US 5615043). Mollenauer '960 and Weingarten et al. discloses the above except the single pass and multipass high gain configuration. Plaessmann '043 shows in (Fig 1-6) the single pass and multipass high gain configuration. It would have been obvious to one skill in the art to use Plaessmann '043 different passing configuration to amplify the signal.

Conclusion

9. Applicant's arguments filed Jan 5, 2004 have fully considered but they are not persuasive. The examiner found the argument not persuasive relating to 35 U.S.C 112, second paragraph. The examiner read the claims given their broadest reasonable interpretation consistent with the specification. However, it is not proper to read limitations appearing in the specification into the claim when these limitations are not recited in the claim. See *In re Paulsen*, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (fed. Cir. 1994); *Intervet America Inc. v. Kee-Vet Lab. Inc.*, 887 F2d 1050, 1053, 12 USPQ2d 1474, 1476 (Fed. Cir. 1989). In addition,

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Applicant pointing out that the reference is directed to a cryogenically cooled “color center” material amplifier; however, it has been held that a recitation with respect to a manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, here it is used for a different purpose. *Ex parte Masham*, 2 USPQ 2d 1647 (1987).

10. The prior art made of record and relied upon is considered pertinent to applicant’s discloses. Kubota et al. (US006240111B1), Backus et al. (US 56444240), Weston et al. (US 59633630) / (US 5790303)/ (US 6122092) discloses laser beam generating apparatus.

11. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (703) 605-0756. The examiner can normally be reached on M-F: 7:30 - 4:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Tuan N. Nguyen



02/20/04



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